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A THESIS


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IN

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DEPARTMENT OF ART AND DESIGN

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ILLUSTRATED MATERIALS FOR DEVELOPMENT COMMUNICATIONS

submitted by LEONARD CHARLES MWENESI

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Department of Art and Design
University of Alberta

Visual Communication Design
Master of Visual Arts Thesis Project

Leonard C. Mwenesi

**Illustrated materials for
development communications**

Foreword

The body of knowledge of visual communication design provides essential information for all designers concerned with graphic communication for rural development. It is important that all rural development designers learn about the various ways through which viable designs can be created for purposes of instructing rural farmers. My need to improve my knowledge about design for rural communication led me to my choice of illustration for rural development as a subject for my thesis.

Visual communication for rural development deals with design problems that need special care, attention and understanding. The prime factor in creating effective design for rural communication is a knowledge of the audience. It is vital to know how the people in question interact among themselves and with their environment. Design created to serve these people should reflect their cultural interrelations so as to be effective. A good blend of knowledge of the people and their environment together with technical expertise is required in designing for rural communication.

Rural farmers in all developing countries urgently need the services of effective visual communication design. It is necessary therefore to develop design criteria that will suit them. It is my aim and determination that these design criteria will be useful for the creation of visual communications aimed at instructing the rural illiterates and semi-literates in the various areas that would help them solve their development problems.

These design criteria will in no case be governed by superficial trends of design style. The only control factor will be the need to develop a design system that is well understood by the people in question. The treatment of form and content, will be developed bearing in mind the targetted audience.

Introduction

Most people living in developing countries are poor. Because of their poverty, they face many problems mainly related to hunger and disease. Most of these people are not lazy, nor are they ignorant of their problems. They work and struggle hard so as to improve their standard of living. Since the individual efforts of these people are not enough to solve their problems, many governments, as well as national and international organizations, are undertaking development programmes geared towards improving livelihood in these developing countries' rural sector. Organisations like FAO (Food and Agricultural Organisation), UNDP (United Nations Development Programme), UNICEF (United Nations Children's Fund) and WHO (World Health Organisation) are among the many agencies involved in these development programmes. Other institutions like IDRC (The Canadian International Development Research Centre), SIDA (Swedish International Development Agency) and CIDA (Canadian International Development Agency) are also worth mentioning. Despite all these efforts, positive change in the rural sector has not been easy and in many third world countries poverty-free life is still far from reality.

Among the major obstacles which have hindered the expected effective contribution of rural development programmes is the lack of proper and efficient communication materials and systems.

A FAO publication - Communication for Rural Development (1979) - comments on inefficient rural communication for development as follows:

"Unfortunately, full and purposeful communication between development agents and rural people seldom takes place spontaneously. The barriers to communication are usually of a socio-cultural nature and involve such factors as the differing use of language and differing levels of literacy and education. Other important barriers can be the divergent interests of the parties concerned and their differing perceptions of the realities of a given situation. Appropriate use of communication approaches and techniques can help to overcome these barriers and promote better understanding." (FAO p. 6) 1

This thesis attempts to develop an efficient visual communication system aimed at the improvement of agricultural production among the rural poor in Tanzania. As a step of the process, it also analyses the various ways in which graphic communication (visual and verbal) can be improved in order to increase its contribution towards disseminating development related information in third world rural areas. Graphic communication here refers to the use of posters, books and booklets, pamphlets, leaflets, rural newspapers, wall charts, flip

charts, etcetera. In an attempt to improve the effectiveness of graphic media in rural communication, a design system is suggested. This design system takes into consideration numerous research findings (that will be discussed later) related to the role and effectiveness of graphic media in rural development communication. Research findings from many third world countries (such as those in Africa and Asia) strongly suggest that the effectiveness of a graphic medium greatly depends upon the quality of the design and its relevance to the audience for which it is intended (NDS/UNICEF, 1976, pg. 43) 2; (Afrolit Report 1980, pgs. 24 - 28) 3. To illustrate this, a particular audience is identified for the purpose of this thesis, so as to have realistic framework, with specific socio-economic and cultural characteristics. The design system is thus thought of in relation to this specific audience.

This study recommends that, so as to produce effective visual images designers need to have a clear understanding of the target audience's cultural profile. Spradley, James (1980) defines culture as *the acquired knowledge people use to interpret experience and generate behaviour.* (Spradley p.6) 5 Murphy, Robert (1986) understands culture as *a body of knowledge and tools by which we adapt to the physical environment, it is a set of rules by which we relate to each other; it is a storehouse of knowledge, beliefs, and formulae through which we try to understand the universe and our place in it.* (Murphy p.24) 4 The study of culture includes the following: analysis of economic production and relations, description of how daily needs are met, observation of how personal interactions develop between the different members of society, and religious beliefs, activities and values of the population, among other factors. Knowledge of the above aspects as they are found in the target audience is essential since this will enable the designers' ability to develop the right approach to solve their communication problems. As well, a thorough knowledge of the audience's level of literacy (visual and verbal) is important for the creation of appropriate and understandable visual messages. The knowledge of how, where, and when to reach the target audience is equally essential.

The study also argues that, apart from having a thorough understanding of the target audience, the drawing quality of the illustrations is crucial. The quality and effectiveness of the images depend on the illustrators' ability to create and produce graphic images that are easy to understand, attractive, well presented, and tailored for the target audience. Research has shown that such drawings need to be simple, realistic and clear enough to be easily conceptualised by the audience (Seth Spaulding, Communication of pictorial illustrations, 1956, pg. 45). 6 For these graphic images to be effective for rural communication purposes, various conventions of representation

are to be closely considered. Scale and perspective in picture composition, sequence of illustrations in subject development, together with other graphic devices such as proper use of lines and dots in drawing have to be treated carefully.

It is also urged that realistic and believable subject composition and object proportion within a particular composition are crucial for effectively communicating with illiterate people. Subject compositions need to show and include scenes that are familiar to the audience. The graphic representations should include objects drawn to their right relative sizes in relation to distance and space. Figures of people have to show the intended actions in accordance with anatomical reality.

The eye of an illiterate individual needs to be well guided through and along the graphic images. A special system has thus been created that makes proper use of well planned picture frames with appropriate links to succeeding images.

The presentation of visual images has as well taken into consideration the various technical and financial limitations related to their reproduction in third world countries. Lines and dots of varying sizes are used to draw images on A4 paper. This style allows for easy and low cost reproduction of images using photocopying technology.

1. Parameters for the project

1.1 Subject matter

The contents of the graphic communication material developed in this thesis are related to low technology farming, aimed at improving agricultural production among the rural poor of Tanzania. As an example of the above, all the steps of maize growing are presented in illustrations related to brief and simple texts. These illustrations and texts are based on main and specific growing activities that comprise planting (on ridges and on the flat), thinning and supplying, fertilizer or manure application, weeding, harvesting and drying.

1.2 The Audience

The design system developed in this thesis is prepared bearing in mind the various research findings related to the problems of graphic communication in third world countries' rural areas which are discussed in this text. Since the term "third world" covers many countries with differing socio-economic and cultural settings, the audience has been limited to that of the Dodoma region - central Tanzania. The limited audience enables the project to deal with a homogeneous rural setting having people with less diversified cultural values. Since the central purpose of this project is to help disseminate information concerning efficient low technology methods of agricultural production among illiterates and semi-literates, the audience greatly determines the level of complexity of knowledge to be conveyed. The chosen audience, for instance, can only easily conceptualize information which is simple and non-technical. Therefore the graphic presentation involves carefully synthesized and simplified information. Complicated information that involves discussion of the chemistry of the soil and industrial fertilizers is avoided. Information that is used is simple, clear, straightforward and written in plain language.

The illustrations are created in such a way that they carry more information than the accompanying text. The text is added to supplement and reinforce the information provided by the illustrations. Hence only limited amount of text is used.

There is no use of complicated and abstract measurements. Size, height and distance involved in the processes are to a great extent shown visually in the relevant illustrations in comparison to human scale. For example, the approximate size and height of ridges pre-

2. Background

Review of the literature

In third world countries, the majority of people live in rural areas, and most of them are illiterate or semi-literate. Benard Kiyenze (1987) reports that *85 per cent of the Tanzanian population lives in rural areas.*⁷ According to the Afrolit Report number six (1980), *approximately 70 per cent of the sub-Saharan African population is estimated to be illiterate or semi-literate.* (Afrolit p. 9) ³ The rural section of the population of these countries also forms the backbone of their economy, which is predominantly agricultural.

Difficult living conditions, lack of communication and transportation systems and shortages of food supply and health services make development in third world countries very slow, leaving the majority of rural people in absolute poverty. These people can't improve their living standards without increasing agricultural production. Protect and Produce (no date), a FAO publication, shows that *In 1980 the population of the developing countries was about 3252 million people. Nearly 500 million of them - about one in six - were seriously undernourished. Yet by the end of the century the population of the the developing countries is expected to increase by 50 per cent -to 4874 million. How are the increasing numbers of people to be fed...*(FAO p.4) ⁸ Increase in agricultural production is near impossible because a majority of people lack the knowledge of efficient farming techniques. This knowledge is more central to development than the acquisition of machinery without proper attitudinal changes.

A FAO publication, Communication for Rural Development (1979), comments on the importance of adequate communication for development in the rural sector as follows:

"Results of agricultural and rural development projects have too often been disappointing, falling well short of their objectives... . In the final analysis, no amount of investment or provision of technology and inputs will bring lasting improvement in the living standards of the rural people unless they, themselves, change their attitudes and behavioural patterns. It is the people that bring about development, and there can be no change for the better without their informed participation, without mobilising their capacities and energies, and without increasing their knowledge and skills. Communication is pivotal in rural development because it caters for these human dimensions". (FAO p. .3-4) ¹

The presence of viable communication is thus decisive in undertaking any meaningful development programs. By viable communication I mean the balanced sharing of information between the development experts and extension workers on one hand and the rural

population on the other. The two sides have to learn from one another and contribute useful knowledge and the role of the visual communication designer is that of creating the appropriate instruments to facilitate this exchange of information. The cited FAO Communication for Rural Development (1979), elaborates on how viable communication should be in the rural areas:

"The essence of involving rural people in the process of their own development lies in the sharing of knowledge. This sharing implies two way communication, rather than one way transfer of information. It also implies that the exchange should be between communication equals. On the one hand, technical specialists learn about the peasant reality as it is seen and lived by the peasants themselves; on the other, the people learn of the techniques and proposals of the specialists". (FAO p. 4) 1

In addition to the suggested low efficiency of one way communication media, the infrastructure is very minimal in most areas of Africa. The establishment of proper and efficient mass media systems in third world countries is still difficult due to economic constraints. The Afrolit Report number six (1980), reports that:

"These days television still only serves about one per cent of the population of most African countries... . Radio holds a wider appeal but this form is limited in the type of messages it will convey effectively. There are few magazines or newspapers found in rural areas...". (Afrolit p. 9) 3

There are some developing countries, like Tanzania, which have not even introduced television networks. Even in those countries which have introduced this communication medium, the coverage is very much limited, and mostly benefits a small, usually urban population. Haig David-West (1987), reports that the *Nigerian television network only covers 30 per cent of the entire population. Despite the limited coverage, another major obstacle is the high cost of the television sets, which still reduces the number of potential viewers.*⁹ Radio coverage has in some countries managed to reach a larger population compared with television. Mark Lever (1987), writes that *the radio in Tanzania, (population of 24,055,000), reaches up to 9 million people during peak hours.*¹⁰ Stephen Mulomba (1987) however comments as follows:

"Most families in Zambia cannot afford to own a radio, let alone a television set. These media are very expensive for the common man. In short, one can safely say that, the majority of our people do not get the information they are supposed to get, thereby making them unable to contribute to development". 11

However, as noted above, radio and television coverage alone do not ensure effective communication. To be effective, radio and television have to be part of a workable teaching and learning system. They have to operate hand in hand with other mass media. The other

major means of communication that could contribute well towards the dissemination of development information among the rural poor is the use of graphic communications such as posters, booklets, pamphlets, rural newspapers, wall charts, flip charts and leaflets. These media have in many cases been employed in disseminating information among the rural poor. The effectiveness of these means has however been unsatisfactory in many developing countries. This has essentially been due to the low quality and inappropriateness of the design approaches. The audience, which is in most cases composed of illiterate or semi-literate people, has also been a notable obstacle. Their visual literacy, which is normally low, has made the creation of visual communication images very difficult. According to a NDS/ UNICEF report (1976), *most adult Nepalese villagers cannot read or write at all.* (NDS/UNICEF p.i) 2 On illiteracy, Daphne Rawson Jones and Geoffrey Salkeld (1970) comment that:

"The illiteracy level of sub-Saharan Africa is very high and in spite of great efforts to combat this by government, United Nations and other agencies, progress is slow. The increasing number of literates is not keeping pace with the increasing number of new adults and high population growth rates are making progress particularly difficult." (Jones/Salkeld p. 67) 12

In spite of the inadequacy of visual communication design systems in the third world, dissemination of information in the rural areas is also retarded by poor management that controls production and distribution of the graphic materials. Miriithi Kinyau, (1987) writes on printed learning materials and literacy programs as follows:

"Research has demonstrated that the problems facing literacy programs are largely administrative, project support and production of learning materials. Print can be a powerful tool for literacy work especially when used by those who know how it works. But according to *Literacy Review* (1980) production and distribution of reading materials in the third world is still an area of hopes and possibilities. The question is, can the graphic designers in third world countries meet this challenge? What role can they play to produce materials that are interesting, functional and culturally relevant?" 13

The present role of the graphic designer for rural communication in developing countries is to create an adequate design system that will suit the literacy level of the intended audience. The FAO publication, *Communication for Rural Development*, stresses the importance of planned communication strategies for development. It notes that:

"...to be effective, development communication must be based on proper audience research, good planning and management, the use of a variety of media channels, and ongoing testing and evaluation. The more traditional production of communication materials for rural development in a somewhat ad hoc, and uncoordinated way, and often as stand-alone initiatives rather than part of a communication strategy, has seldom had any measurable effect in helping to change attitudes and behaviour." (FAO p. 8) 1

A general illustration and design strategy that will work well with the rural illiterates and semi-literates has to be developed on the basis of existing research. Designs could be modified to conform with specific village or community settings, norms and values. These printed materials could then be successfully used by experts and other rural extension workers to teach people at village level. The possible development of such a suitable design approach, as already noted above, is the aim of this thesis.

3. Structure and style of the illustrations

The design of viable graphic materials for rural development greatly depends on the illustrator's ability to create effective picture representations. The designer or artist needs to be able to draw pictures that can clearly and easily be understood by the intended target audience.

Not all types of picture representations can be read and understood by all people. Some people, such as the illiterates and semi-literates can only easily interpret picture representations that are drawn in a simple and realistic style. Other more educated people, people who have been well exposed to a variety of complex picture reading and interpretation, are able to conceptualise information from more complex and even highly abstract compositions.

Before any design system is thought of and formulated, it is essential therefore, to look into the various representational factors that matter most, and to consider the educational level of the audience.

3.1 Realism

Research has shown that peoples' ability to recognise objects in a pictorial composition is increased when that picture is represented in a realistic style (Afrolit Report, 1980, pg. 29) ³; (Seth Spaulding, 1956, pg. 37- 45).⁶ This has especially been very helpful to the illiterate and semi-literate target groups.

For a message in pictures to be easily understood, the representation has to show the objects in the same way as they are seen in real life. Any attempt towards abstraction will tend to limit the recognition ability of the viewer.

However, this realistic treatment of illustrations can be rendered in different ways . A picture can be drawn and shaded to an extent that it looks like a photograph. That is the case in a drawing that is done realistically (following all the required proportions), and that uses very fine shades of tones.

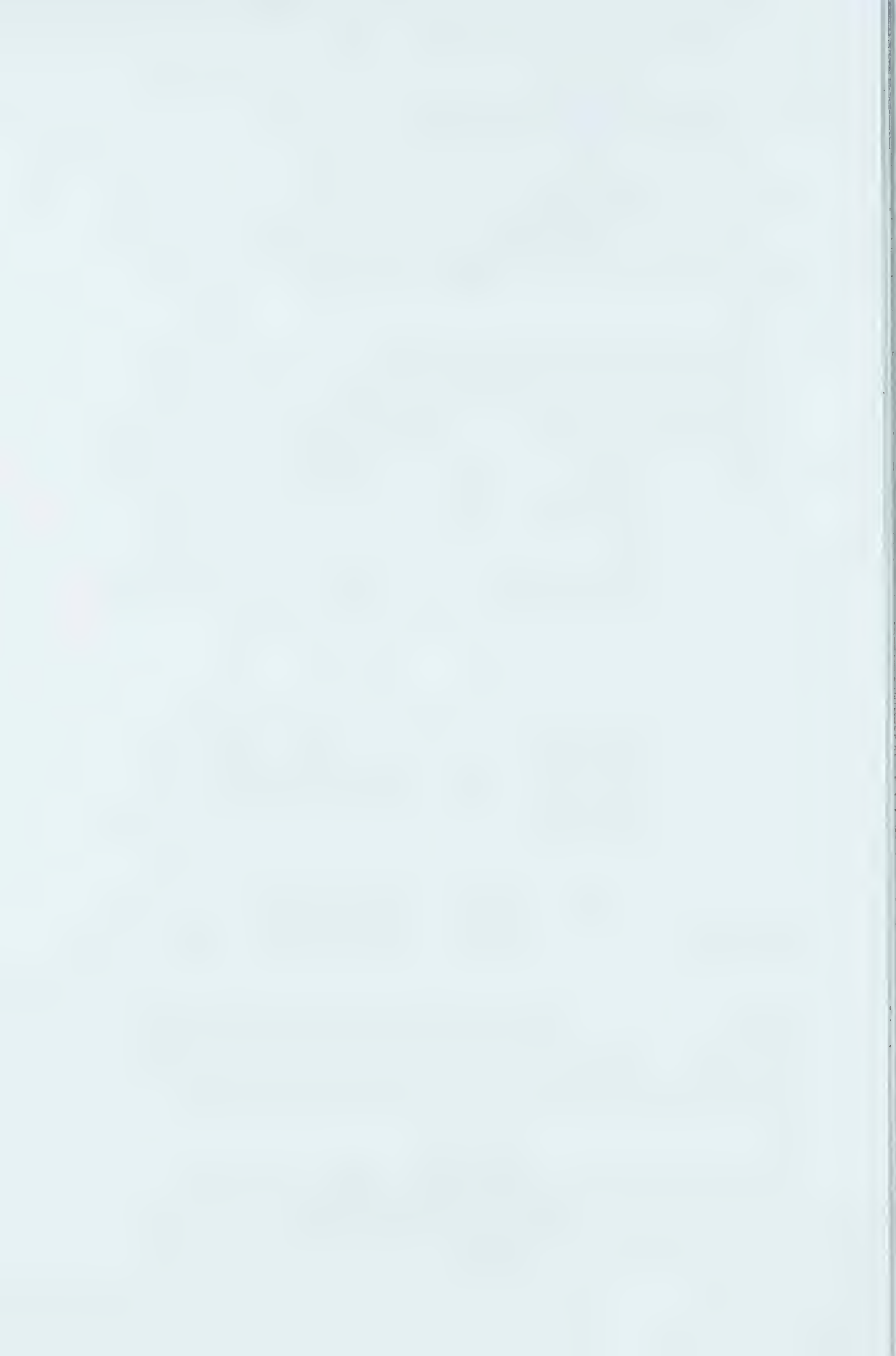
In certain cases a realistic drawing can be shaded by using a few essential lines of differing thickness and very little shade and light treatment. Another approach of shading a realistic drawing is by using limited outlines and cross-hatching. A picture can also be drawn

by only using dots of differing sizes and drawn at appropriate varying distances. The same picture could as well be drawn by using only thick and thin outlines. Since there is no governing universal principle concerning the style of shading an illustrator has to follow, many drawings can be done using different combinations of the above noted forms, depending on specific factors.

The choice of a particular style for the rendering of a pictorial representation is normally done in relation to the end function of the composition. If the drawing is intended to be more decorative than communicative in function, then a realistically detailed rendering style could be preferred. But when the end purpose is communicative then a rather simplified realistic approach should be used in order to concentrate the attention of the viewer on the specific elements required by the purpose of the illustration. The printing techniques to be used also do occasionally determine the type of drawing style to be employed. When sophisticated printing techniques are to be used in the production process, then almost any illustration technique can be used. But when the reproduction is to be done by, for instance, low quality photocopying, then a more manageable style that makes use of cross-hatching or dots can be more suitable. Photographs, or detailed drawings, with continuous shading, are in most cases difficult to reproduce with low quality reproduction techniques.

When considering illustrations for communicating with illiterates and semi-literates, the style of representation has to be that which can allow easy and clear understanding of the message to be conveyed. The illustrations have to be realistic, simple and clear. Such pictorial compositions should be devoid of unnecessary detail that can hamper easy understanding of the ideas portrayed. Luiz Fonseca and Bryant Kearn (1960), stress that *illustrations for development must show evidence of intelligent selection of detail...comprehension is reduced either by excessive detail or excessive deletion of detail.* (Fonseca/Kearn p. 17) ¹⁴ Effective communication illustrations should only include details which enhance message comprehension. Details should not be added to a pictorial composition just for the sake of beauty. Unnecessary detail tend to detract the viewer's concentration from the main idea of the composition. Too much, unplanned detail tends to obscure some of the essential cues in the composition - necessary for comprehension. Daphne Rawson-Jones and Geoffrey Salkeld (1970), comment that:

"It would seem that background with details which are not important for the message probably only creates interference with correct identification of the subject". (Jones/Salkeld p. 76) ¹²



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Also on the selection of details to be included in an illustration, the NDS/UNICEF report (1976) notes that:

"The most effective style of picture is clear realistic without inessential background...the more stylized a drawing is, the less success it is likely to have... . If one compares the different styles of drawing, it is apparent that the more detailed and realistic a drawing is, the better chance it has of being recognised". (NDS/UNICEF p. 19; 42) 2

A study done on the effectiveness of illustrations for development by the Afrolit Society (1980), also points out that realistic rendering of compositions for communication has a positive influence on concept comprehension. The study shows that:

"Complicated messages with too many items in the illustration cannot be comprehended... . Superfluous detail in the background should be omitted for the new viewer, who may find it confusing and unattractive". (Afrolit p. 11; 12) 3

Another study by Seth Spaulding (1956), on the communication potential of pictorial illustrations further stresses the importance of selected realistic rendering of compositions for communication. It points out that:

"The criterion of realism refers only to the need to portray actions and objects clearly, without fuzziness of detail... . Photographic realism is not advocated, since such representation usually includes unnecessary detail which can obscure the area of emphasis". (Spaulding p. 45; 46) 6

Luiz Fonseca and Bryant Kearl (1960), again outline the necessity for clarity and simplicity in pictorial compositions:

"Place the clarity of the illustration above most other consideration of artistic presentation. Inclusion of lines, shadings, and special effects and unusual artistic perspectives may appeal to a sophisticated sense, but will often tend to confuse the viewer of limited education and hence block his comprehension". (Fonseca/Kearl p.17) 14

For effective visual communication, detail in pictorial composition must always be kept to a minimum. Only functional detail that helps the understanding of information needs to be added.

3.2 Subject composition

Another very essential factor in effectively communicating with illiterates and semi-literates is the careful treatment of subject composition. By subject composition I mean the selection and arrangement of the various objects that make up a picture message or story. These things can be human figures, working tools or any other object. The environment must also be closely considered when creating communication visuals, as it always has some effect in the way a pictorial

composition is interpreted. In pictorial composition, realistic drawings alone are not enough to guarantee effective communication. These need to be accompanied by a subject composition based on the intended audience's past experience. For the representations to be believable to the audience they need to include objects that are familiar. They should, where applicable, include images of people similar to those found in the audience's social setting. They have to portray the fashion and mannerism predominant in the society in question.

Although several recommendations outline the need to omit unnecessary backgrounds, it should be remembered that, where necessary, in some specific cases, backgrounds might improve communication. In his studies on applied communication in developing countries, Andreas Fuglesang (1973) notes that:

"Whenever cues are present in the picture, our ability to perceive the identities of objects and interaction is fundamentally dependent on our experience, ie. we cannot be expected to be able to identify objects which we have no experience of. This simple fact has vast implications for the use of pictures in intercultural contexts". (Fuglesang p. 77) 15

The effect of familiarity of objects and way of life in the perception of messages in pictorial compositions is also noted in Daphne Rawson-Jones and Geoffrey Salkelds' study (1970). They stress that *pictures of familiar scenes or objects are more easily identified by an intended audience*.¹² Luiz Fonseca and Bryant Kearls' research (1960), also reveal the importance of past experience. They conclude that:

"Recognizable familiar objects presented in an illustration add to comprehensibility. Conversely, the presence of locally unfamiliar objects tends to reduce correct interpretation of the symbol... . Use only very obvious symbols which are essentially a part of the daily life of the intended audience". (Fonseca/Kearl p. 17) 14

The NDS/UNICEF study in Nepal (1976), indicates that *drawings are more likely to be successful if such things as buildings, clothes, etc. are based on locally familiar styles*. (NDS/UNICEF p. 42) 2 The Afrolit Report (1980), also puts more emphasis on the artists' essential role of understanding the audience's mode of life. They need to know the traditions predominant in the society in question. The study notes that:

"The artist needs to learn about the dress, customs and traditions of the target audience... . Rural people are more interested in pictures if they can recognize people like themselves in them. Figures should be dressed appropriately, and facial resemblance to members of the community is often an advantage... . Mannerisms, ways of dress, facial expressions, which are familiar to the audience, all help to communicate the message more effectively. (Afrolit p. 14-15; 25) 3

Effective pictorial compositions, therefore, need to be drawn based on a clear understanding of the target audience.

3.3 Drawing ability of the illustrator

To be able to create workable graphic materials for communication, the illustrator's ability to draw is crucial. Realistic and believable drawings essential in conveying required information can't be produced by an untrained person. The illustrator needs to have the ability to draw pictures of objects in their right proportion and appearance. Fuglesang (1973), observes the importance of good drawing for the visual communication illustrator. He says:

"When the maize cob and the bunch of bananas can be mistaken for flies, insects, or butterflies, it is rather the artist (not the audience) who should be blamed". (Fuglesang p. 83) 15

Alan C. Holmes (1963), also does note the importance of well executed drawings. He observes that:

"For example if the spoken message relates to the use of a four gallon parafin tin as a vessel for carrying water and the pictorial form used as an aid is interpreted by the viewer as a cupboard, he or she will wonder how water can be carried in a cupboard, association will be lost and confusion result". (Holmes p. 5) 16

Drawings should be created in such a way that they convey the right information. Human figures should not in any way appear dead or motionless when they are supposed to show action. The artist needs to create drawings with the right action forms - which show the expected body movements, since departures from this will distract the viewer. Drawings should not show impossible or unlikely body turns, bends or movements.

Figures in groups should be drawn so that they relate to one another and to the intended idea. They should not appear aimlessly scattered, without performing some understandable and appropriate task.

Good drawing control is called for when an artist has to show mannerisms and different moods in people. It is only through quality drawings that viable communication can take place between the informer and the informed. The NDS / UNICEF study (1978), recognizes the importance of effective drawing ability. Stating the following:

"If it had been possible to represent the flames more convincingly, the picture (of DEATH- funeral pyre) might have been more successful. Villagers who thought they were jungle grass, etc., would have been led away from the idea of a funeral pyre, as bodies are actually cremated over river banks or in other open spaces, and not among thick foliage". (NDS/UNICEF p. 29) 2

The Afrolit Report (1980), states the importance of the control the artists have over their medium:

"There is also a growing feeling among artists that many of these illustrations are not executed as professionally as they could be. ...The artist...is a communicator of messages aimed at enhancing people's lives. The development artist must produce functional pictures". (Afrolit p. 8; 9) 3

It is inevitable therefore for artists involved with visual communication activities for rural third world development to have sound and relevant training in art and design. Their ability to draw has to be taken as prime for attaining any viable illustration for good visual communication design solutions.

3.4 Communication of complex messages

On the ability to create functional drawings, Seth Spaulding's study (1956), states that:

"If the illustrated material does not communicate a clear cut idea, it will not help clarify the accompanying text". (Spaulding p. 33) 6

For easy understanding of ideas conveyed in figures, research findings favour the use of full figures instead of showing only parts or sections of the body (Afrolit Report, 1980, pg. 11). Illiterates and semi-literates find it difficult to conceptualize ideas conveyed by using parts or sections of the human figure, such as hands only, feet or the head. These learners need to relate a particular action to the whole body movement or posture, so as to understand the meaning behind such an action. The Afrolit Report, (1980), stresses the importance of full figure drawings in communication. It reports that:

"If the answer is that the visual perception level of the target audience is low, then the artist must make his drawings accordingly. The drawings will have to contain full-figure images since these are the most easily understood... Full figure drawings are usually understood and provide a useful starting point for educating and introducing an audience with low visual literacy level to picture communication". (Afrolit p. 11; 24) 3

If the process or procedure to do something has to be illustrated, then several single message drawings have to be made so that in total they make up the entire meaning. It is not worthwhile to attempt to portray the whole meaning of a complex process in a single composition - since this makes it hard for illiterates and semi-literates to understand the illustration. Luiz Fonseca and Bryant Kearn (1960) comment on this as follows:

"The illustration of a process involving steps or actions should have at least as many individual pictures or frames as there are steps or actions of depicted process.. ...Use such techniques as numbers , arrows, directional lines, and design devices to make clear the order in which the viewer should read your series of symbols". (Fonseca/Kearn p. 17) 14

The Afrolit Report (1980), also supports the use of separate single pictures to explain a complex idea to illiterates.

"A progression of ideas (such as might be suggested for illustrations dealing with 'how bilharzia is transmitted' or 'the mosquito cycle' for example), should never be presented in a single drawing to such an audience. ...Single message illustrations are the best introduction to a rural viewer". (Afrolit p.25) 3

3.5 Relative size and position

For illustrations to be easily understood by illiterates and semi-literates, they need to be drawn in believable relative sizes. Objects or figures in pictorial compositions should appear to the viewer to be in their right relative sizes. It is hard to understand a drawing when a cow and a goat are drawn side by side and appear to have the same size. It might be helpful to introduce simple perspective to rural viewers when, for instance, showing a house on the background of a picture with people tilling land. The Afrolit Report, (1980), has again summarised the importance of relative size as follows:

"The scale of items in a drawing should be like daily visual experience. Large illustrations should not be used to depict small items such as insects". (Afrolit p. 16) 3

It is evident from the discussion above that the artist needs to be equipped with a thorough knowledge of perspective, adaptable to the level of understanding of the audience. Fuglesang (1973), discusses the importance of perspective when showing relative size and distance in illustrations. He says:

"Perspective...is one of the most important cues to perception of depth and distance and thereby also to the sizes of objects in pictures". (Fuglesang p. 73) 15

3.6 Summary of criteria for the production of illustrations for this project

3.6.1 Illustration technique

The kind of illustration style to be developed for this project will be realistic. Pictorial compositions will be rendered clear, simplified, and realistic in form with carefully selected details. The illustrations are to be drawn in pen, brush and black ink. The use of the pen and ink drawing medium is purposefully selected due to production reasons. Pen and ink drawings can easily be reproduced by both offset and photocopying processes.

The actual drawings in pictorial compositions are created by using a mixture of graphic elements. In a single illustration, for instance, various parts or objects are drawn by using dots or thin and thick lines. Since the drawings need to be clear and simple, complex cross-hatching or extensive realistic shading is avoided. Complex cross-hatching tends to make drawings appear complicated for the illiterate viewer. Such cross-hatching drawings can appear beautiful as art works, but fail to function well as means of communication. On the other hand, extensive realistic light and shade with continuous tones can't copy well by the use of simple and inefficient photocopying machines.

Photographs are not used. This is because they can't be reproduced well by normal photocopying. It is also very difficult to take photographs with selected detail. Block-out tends to eliminate every thing on the background and thereby excludes the entire environment. Photographic representation is also more expensive compared with pen and ink rendering. Extensive photographic reproduction (especially in colour) is very expensive in many developing countries. The use of colour painting in illustrations for rural communication is also not favoured due to reproduction costs. This is noted in the NDS /UNICEF study in Nepal, (1976). It is reported that:

"We tested only pictures which were actually likely to be considered for use in booklets or posters produced on a large scale, or in materials made on the spot by village level workers. This eliminated, for example, such things as full colour photographs. It might be interesting to know how successful these are in communicating with unschooled villagers. But this would not be a useful piece of information because it is difficult and very expensive to print full-colour photographs in Nepal, and the cost and difficulty of such a process rule it out for large scale production of village development materials". (NDS/UNICEF p.2) .2

Seth Spaulding (1956), comments on the use of colour in visual communication. He says that, *colour in illustrative material adds to the interest potential of the drawings. However, unless used realistically and functionally, colour may detract from the communication potential of the drawings*. (Spaulding p.46) 6

The illustrations developed for this thesis are not executed in the form of decorative artworks. They are created as pieces to serve a visual communication purpose. Different parts or objects in a pictorial composition are drawn using different techniques. For instance, dots are used to represent soil, while thin and thick lines for figures and objects. The use of a single technique for the entire picture tends to mix many cues in the composition and make conceptualisation very difficult for the illiterate and semi-literate audience. The use of various

drawing techniques does help make individual figures or objects in a composition stand out well and clear against the background. A lot of white space is used in separating unrelated parts within a pictorial composition so as to facilitate their comprehension.

3.6.2 Representation of people

Figures represented in the illustrations resemble the common rural people of the Dodoma region in Tanzania. Images of people have African features. Care is taken in the representation of facial features and body proportions. Costumes also play a major role in creating the personalities of the audience in question. The costumes are those worn during work time. For instance, men do sometimes put on a pair of shorts or rolled up trousers, with their chests left bare. Occasionally men can also be seen wearing a shirt. Some men wrap themselves with a piece of loin cloth and leave their chests bare. Women normally put on relatively short gowns. Sometimes they wrap cloth by their chests and leave the shoulders bare. At times they wear a dress and wrap some cloth by their chests. Some women can be seen wrapping their heads with a piece of cloth or headscarf. Dressing habits mainly depend on the climate of the time. These people, (men and women), rarely wear shoes while tilling land.

The working tools shown in the illustrations are those commonly used by Tanzania's rural poor. The most usual tool is the hoe. This is because very few peasants can afford hiring an ox-drawn plough or tractor.

Figures are drawn large enough to be clearly and closely seen. they are drawn in relation to the eye level of a standing adult viewer. That is, not seen from below or above. People are represented (as noted above) by using thin and thick lines. These lines are drawn to define the body structures, movements and posture. These lines are also kept to a minimum, so that there is good balance between the white space and the outline of the figures.

The number of objects on the background is kept to a minimum. Only those objects that contribute to the understanding of the required environment are included. The relative size of the background objects is judged and represented in relation to the figures. Distances between individual objects, their heights and visibility are as well seen in relation to the figures. The background objects are not drawn in detail. The drawing of these objects is simplified albeit maintaining their comprehensibility. This style of representation gives room for the figures to stand out and be clearly visible to the intended audience.

3.6.3 Representation of soil

Most of the actions in the pictorial representations are between people and the land. Hence convincing visualisation of the soil is essential. The soil is represented by using dots only. Visualisation is achieved by varying the distance between the dots and the size of the dots themselves. Dots have been chosen in favour of other techniques due to the texture they make on paper, which closely approaches that of the soil.

3.6.4 Size of illustrations

Illustrations are drawn large enough so as to facilitate the drawing of the required details. For example, the representation of soil's texture using dots becomes very difficult when the size of the original drawing is small. The background representation is equally difficult to handle in small size drawings. Large drawings also help ensuring that proportions are correct. Their reduction requires lines and dots that are thick enough so as not to disappear in the reproduction process.

3.6.5 Captions

The captions that accompany the illustrations are presented with an aim of being read by semi-literate people. The text is therefore written in plain language (English/Kiswahili), without incorporating difficult or uncommon words. No technical terms are included.

Information conveyed by the text is to be understood easily. Hence the use of short and clear sentences. The sentences are written using short lines. The use of short lines makes it easy for the semi-literates to read through the text. Short lines also enable the text to fit well within the picture frames. Care is taken when cutting lines otherwise this leads to confusion due to incomplete meaning. The line cuts are done in such a way that they aid reading and not hinder it.

No hyphenation is used, since hyphenation might challenge the reading ability of the semi-literates. For easy reading, large letter sizes (14, 18, and 32 points) are used.

In general the accompanying text is designed in such a way that it directs the attention of the viewer to specific elements of the illustrations. Large numbers (50 points) are used in the layout. The numbers lead the reader to consistently move from one picture frame to the next below it. The picture frames separate dissimilar illustrations and text so that the audience reads and understands one part before

moving on to the other. The picture frames are broken to allow and lead the eye to move on to succeeding parts of the layout.

Grey tone is used for the background of the page, in order to increase focus on the individual illustrations, text and numbers.

4. Informal testing

4.1 Findings

An informal test was carried out in the Dodoma area of Tanzania. Ten rural workers and six extension instructors were shown copies of the illustrations and text of this thesis and their comprehension of the materials was explored. The illustrations were also tested with forty village farmers.

The illustrations were generally well understood by the target group. The audience was able to identify and explain the activities shown in the pictures. The picture frames (that separate individual illustrations) proved to be very useful; the readers were well guided by them. The subjects read the individual illustrations (with the accompanying text) from left to right. They were also consistently guided by the numbered picture frames from top to bottom. It was found, however, that certain parts of some illustrations were difficult to interpret:

4.1.1 Illustration number one

-Respondents identified the background in the illustration number one as either smoke or insects (ie. flies). The same response was observed in illustration number four (planting on ridges). The activity being done by the woman in picture number one was not clear to some of the readers. This was essentially because the drawing of the garbage is not clearly visible.

-The accompanying text for illustration number one was found to be misleading. It was found that the readers (target group) cleared their land before the early rains, so that they were well prepared for planting soon after the early rains, while the text proposed a reversed sequence.

4.1.2 Illustration number eight

-Illustration number eight (planting on the flat) was also difficult to interpret. Instead of identifying the man as hanging maize, some readers said he was picking pawpaws or picking bananas. However, the accompanying text played a major role in helping the readers (literate ones) to identify the right activity in the misinterpreted picture.

4.2 Discussion (Corrections based on the test results)

Given the errors of interpretation corrections were made to the illustrations number one, two, three, four, seven and eight as follows:

4.2.1 Illustration number one

-A more elaborate background has been drawn for illustration number one. This elaborate background helps to remove the illusion of a hanging or flying background visible in the previous drawing. More reinforcement is done on the garbage drawing. Also changed part of text to read "clearing land before the early rains".

4.2. 2 Illustration number two and three

-To ensure positive influence of the background on interpretation, a more elaborate drawing (of the background) has also been done for illustrations number two and three (planting on the flat). Illustration number four (planting on ridges) has also been improved in the same way.

4.2. 3 Illustration number eight

-To take care of the misinterpretation of drawing number eight, a more realistic and elaborate drawing of maize (being hung) and the tree has been done. A closeup drawing of the hands has also been added.

4.2. 4 Illustrations number seven and eight

-To create a unified directional sequence for the reader, drawings number seven and eight have been redrawn and rotated so that the figures face the direction of the accompanying text as in all the other illustrations. For more subject and picture balance, a second maize plant has been added in illustration number seven.

4.2. 5 General observations

-The information collected during the informal testing confirms the need to include testing as a routine component of every communication project.

-The lack of experience of illiterate and semi-literate individuals with the graphic conventions common in Western illustration, calls for careful reliance on such conventions and requires comprehension tests of prototypes to ensure successful solutions (These conventions are fundamentally perspective, scale, and the different levels of abstraction involved in any drawn representation of reality).

-The "simplified realism" of the illustrations proved effective in communicating with the illiterates and semi-literates.

-Illustrations should not be oversimplified, otherwise they lose most of the essential cues important for correct picture interpretation. A good balance between realism, simplification and detail is necessary

to keep the message clearly visible.

-The importance of directing the reader's concentration along the illustrations and text was reinforced by the interviews with the illiterate and semi-literate subjects. This factor may not necessarily be true for the literate individuals.

-An illustration has to carry enough information in order to explain the activity intended. It should not depend much on captions.

The accompanying text should only stand as a mere elaboration and not as an explanation.

-Designers should closely bear in mind factors related with socio-economic, cultural and political issues prevalent in target areas so as to produce effective illustrations.

Appendix 1 Review of some existing materials

The reviewed materials are illustrated booklets prepared to educate rural farmers in Tanzania. The booklets are illustrated using drawings and photographs made by various artists in Tanzania. The review is meant to point out various factors that make these illustrations effective or ineffective. The review also serves to show the general quality of illustrations in rural communications for development. The analysis is based on two major factors: firstly it considers whether an illustration has enough and relevant information and secondly it considers the way in which the information is presented in terms of layout and sequence.

A.1 Publications:

A.1.1 Kilimo cha mpunga - bonde la Usangu - Mbeya (Rice farming Usangu Basin -Mbeya)

(a) *Photograph of growing rice:*

This is a photographic illustration meant to show growing rice. The photograph fails to show enough information to enable the illustration to be self explanatory. The picture is very faint with little contrast between light and dark areas. The photograph is actually out of focus and hence completely failing to show the distinctive features of growing rice. Apart from the original photograph being faint and out of focus, poor printing quality has affected the printed product. Poor techniques have also resulted in having part of the title and borderline faintly printed. Good pen and ink drawing would have been a better solution for the poor printing technology used in this example.

(b) *Drawing of a man ploughing:*

This is a drawing showing a man ploughing with two oxen. The drawing's weakness is the lack of correct relative size and proportion of the man, the plough and the oxen. The man is drawn too tall compared to the oxen. The man's large head also makes him look too young to be able to do the ploughing activity. The two oxen seem diminished by the relatively big size of the plough. Such problems of incorrect relative size and wrong proportion of objects make illustrations unbelievable to the viewer, and hence affect correct subject conceptualisation.

A.1.2 Mafanikio ya kilimo Dodoma (The success of modern farming in Dodoma)

(a) *Drawing of a man reading:*

This is a black and white ink drawing of an old man reading a book. The drawing involves too much shading that obscures the book which is the focal point. The drawing of the book is also weak. To help the reader know that it is a drawing of a book, the illustrator decided to include its title. This shows his failure in making the drawing self explanatory. The three people on the background are unnecessary. They do not add anything towards a better understanding of the subject.

(b) *Drawing of cotton:*

The drawing which is supposed to show cotton doesn't contain enough cues to enable its correct recognition. The drawing should have included the whole cotton plant and therefore show most of its distinctive features. The drawing of the cotton bud and that of the cotton wool are not in good proportion. The drawing thus depends much on the caption for its recognition.

(c) *Drawing of a woman picking tea leaves:*

The leaves are not drawn in their right shape and proportion and therefore it is impossible to recognise them. The understanding of the drawing is only made possible by the caption, and to some extent by the woman carrying the characteristic picking basket on her back.

(d) *Drawing of a tobacco plant:*

The theme of the drawing (according to the caption) is to show that "tobacco is one of the major cash crops that earn the nation (Tanzania) a lot of foreign currency. It is therefore a crop that needs great care". This is a case where the drawing does not convey any information. Everything is in the text. The drawing does not even expressively support the text. It is only a pen and ink drawing of a single tobacco plant devoid of any side activity to show the type of care the plant needs or its economic importance for Tanzania. Apart from its failure to express enough information, the drawing is also sketchy and doesn't exhibit enough finishing details.

A.1.3 TFNC: Ten years of nutrition work in Tanzania

This is a black and white photograph of a nurse inside a dispensary. The photograph, according to the caption, is supposed to show that "Basic first aid services are provided to the TFNC staff and their families at the TFNC Dispensary." This illustration doesn't convey much

of the information intended. According to the theme, one would expect activities like nurses busy providing basic first aid services to the people. The picture of a nurse alone with a cupboard with medicine behind her back is more a mere decoration of the page than a source of information.

A.1.4 Viwavi jeshi (Army worms)

This is a black and white drawing of a man squatting while examining plants for the presence of army worms. The drawing is good enough but it incorporates a thick black arrow that doesn't have any communicative function. The arrow detracts the reading eye from the focal point of the illustration which is the hands examining the plants. It is possibly an illustration "recycled" from another publication.

A.1.5 Kupandikiza mikorosho kwa kutumia vitawi shina na vishina mama (The grafting of cashewnut plants)

This is a pen and ink drawing showing the grafting sequence of a cashewnut plant. The drawings are good but the order under which the individual illustrations are arranged can be confusing to the inexperienced reader. The use of letters to denote the individual stages of the grafting process can be difficult to follow because the letters do not have a strong sense of sequence; the use of numbers in large point sizes would be much better. Carefully designed picture frames could also assist in clarifying the sequential order.

A.1.6 Hatua na mbinu za ufufuaji wa mikorosho (Techniques and steps to follow in cashewnut plant care)

(a) First Step:

This is a black and white pen and ink drawing showing a man teaching farmers how to care for cashewnut plants. In the drawing the teacher is shown as a white man. It would have been better if the teacher was drawn and shown to belong to the ethnic group of the farmers. This would remove the seemingly colonial mentality from the composition.

A.1.7 Familia yenye Furaha (A happy family)

The picture shows a family standing beside their hut. The family doesn't reflect the cultural values of people who really live in huts in the rural areas. The rural people dress differently. They don't wear high heel shoes or jean trousers. Illustrations should pay attention to the customs and dresses and respect the cultural values of the people they are addressing

A.1.8 Bananas (Description of the banana plant)

This is a drawing of a banana plant showing all its parts including the root system. This is an example of a good illustration. The picture is well drawn with all parts distinctively shown. The illustration is self explanatory. It does not depend much on the caption which has only three words "A banana plant".

A.2 Comment

Considering the above review it was found that very frequently illustrations used in development materials do not contribute sufficiently to the communication of information. They act merely as ornament, making the materials difficult for the semi-literate. The design system developed in this thesis takes great care to achieve a good balance between illustrations and text. The illustrations are prepared in such a way that they carry most of the information. The corresponding texts supplement the illustrations which would, in many cases, stand on their own. The text adds precision to the meaning of the illustrations, but these are meant to be the main memory aid once the semi-literate farmers leave the training session and take a copy of the leaflets with them.

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Final presentation

This is the final product: simple illustrations, plain language and clear relations between text and image and between frame and frame. The illustrations show appropriate human features, costumes, tools and landscapes. The information conveyed is relevant to the target audience.

The standard sheet size, with minor variations, is available everywhere. The drawing technique is reproduceable by offset, mimeograph or photocopying, always at low budget.

This is an example of design that makes a difference, that is not trendy, but is the result of a thorough analysis of a need, of the nature of an audience, and of the determination to produce an appropriate response.

Maize Production

Planting on ridges

1



Clear the land
before the early rains

2



Make ridges
thigh high and
single long strides apart

3



Plant seeds
Two or three
in shallow holes.
Dig the holes in rows,
single long strides apart.

4



**Apply fertilizer
or manure**
around and close
to the base of plants.
Do this two to three
weeks after planting.

Maize Production

Planting on the flat

1



Clear the land
before the early rains

2



Do light hoeing
to well loosen
the top soil

3



Plant seeds
two or three
in shallow holes.
Dig the hole in rows,
single long strides apart.

4



**Remove excess
plants** two to three
weeks from planting,
Leaving plants separated
a stride apart
from each other.

Maize Production

Planting on the flat

5



Apply fertilizers or manure around and close to the base of plants. Do this two to three weeks after planting.

6



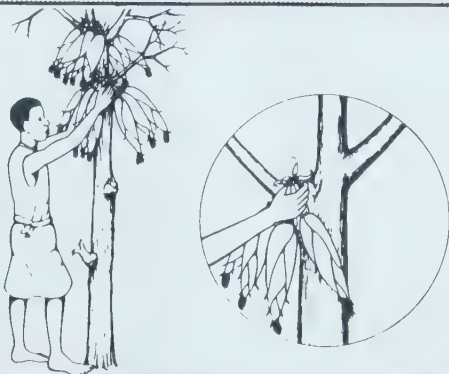
Weed without disturbing maize plant roots. Repeat the weeding as necessary until plants mature.

7



Harvest in dry weather. Snap cob from stalk, when silk has dried and shunks and leaves have turned yellow.

8



Dry by tying two or more cobs together using few pulled shunks. Hang them to dry.

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